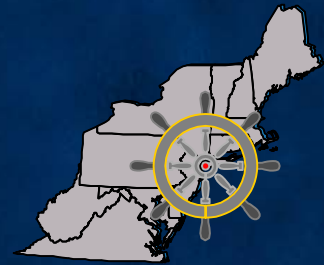


# Port Inland Distribution Network

Marine Transportation System  
Research and Technology Coordination Conference  
16 November 2001



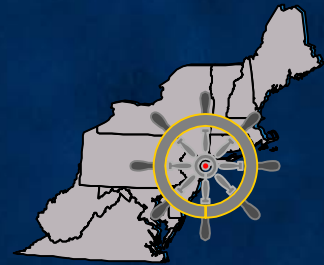
# WHAT IS PIDN?







# WHY PIDN?

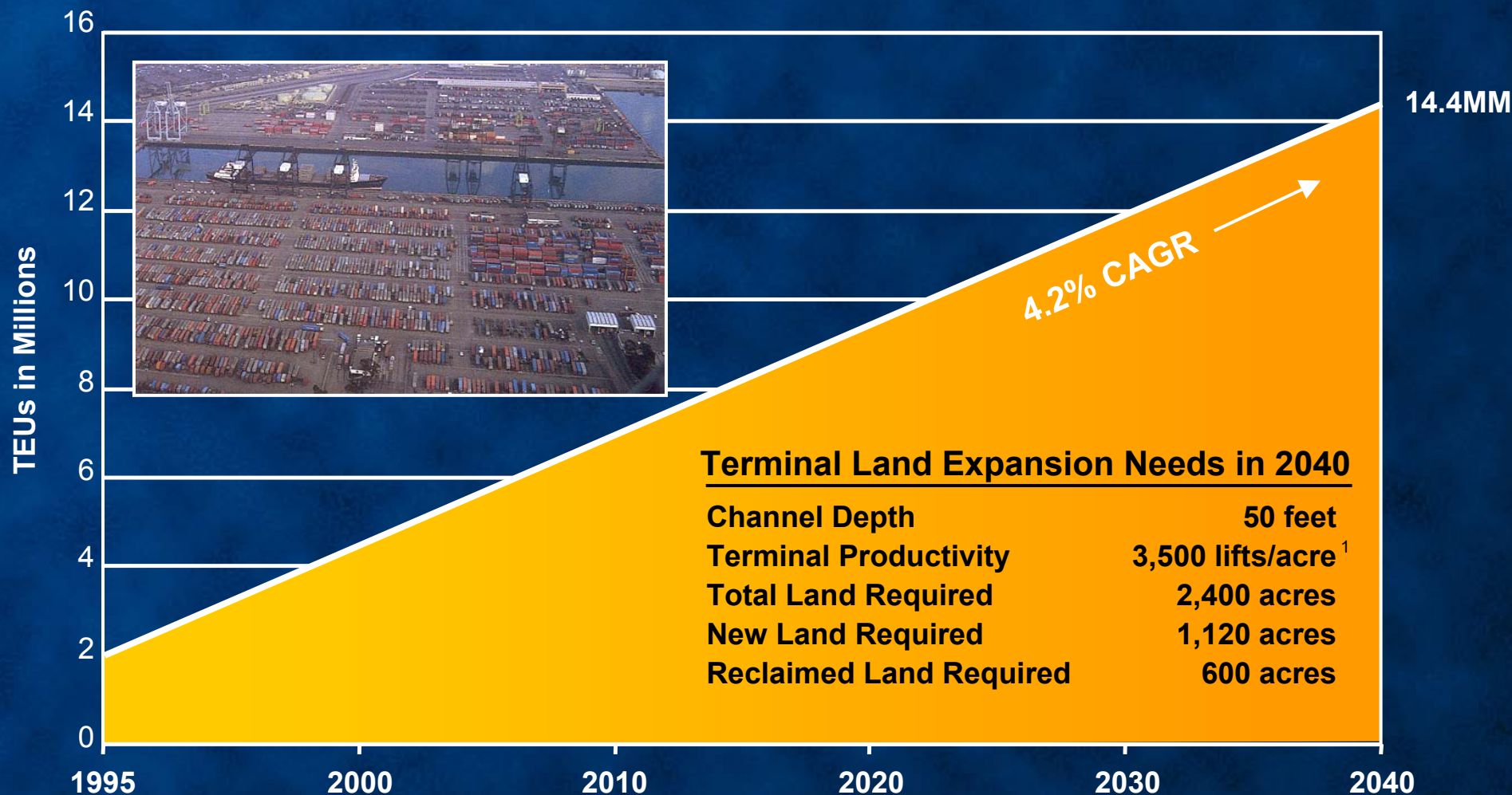




IDN

# PORT DEVELOPMENT & INVESTMENT PLAN

## Forecasted Growth of Container Traffic with 50 ft Channel Deepening



Note: 1) Increased from current 1,500 Lifts per Acre



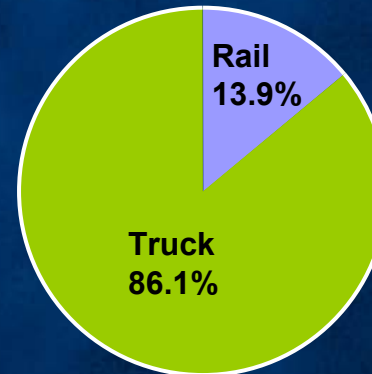
IDN

# PORT GROWTH AND DEVELOPMENT ISSUES

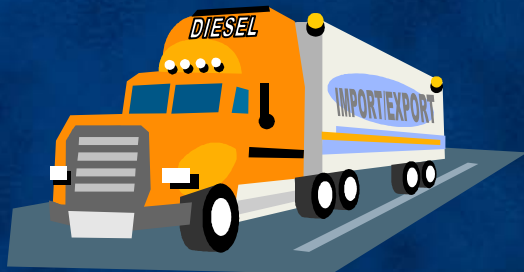
## Land Creation



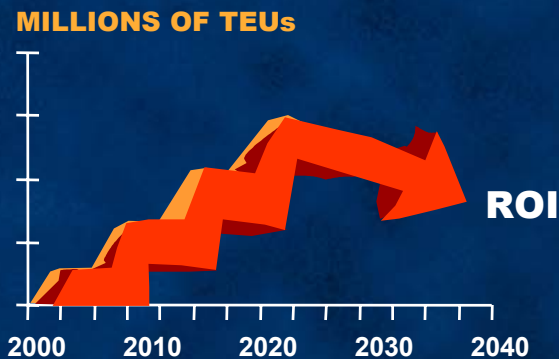
## Modal Split



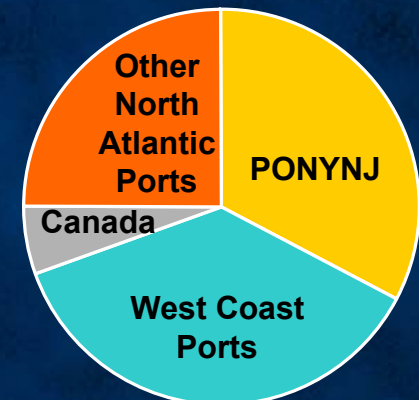
## Environmental Impacts



## Return on Investment



## Regional Market Share



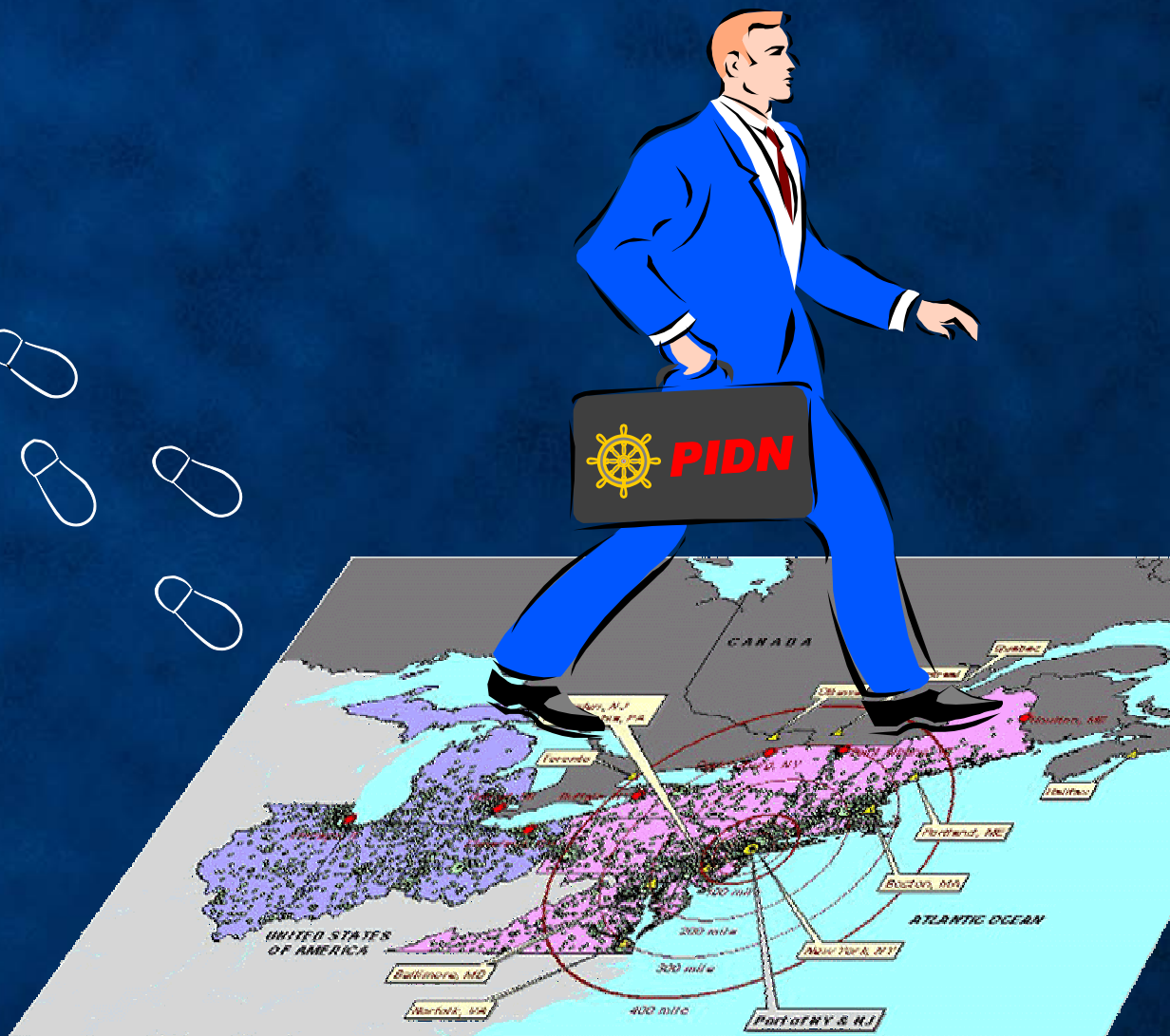
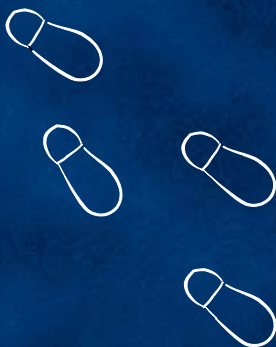


**PIDN**

# TOTAL LOGISTICS VIEW



**PORT LANDLORD**



**TOTAL LOGISTICS PROVIDER**

## PRIMARY GOALS

- Reduce Inland Distribution Costs
- Reduce Truck Trips (VMTs)
- Improve Air Quality
- Increase Throughput Capacity
- Increase Market Share

## ADDITIONAL BENEFITS

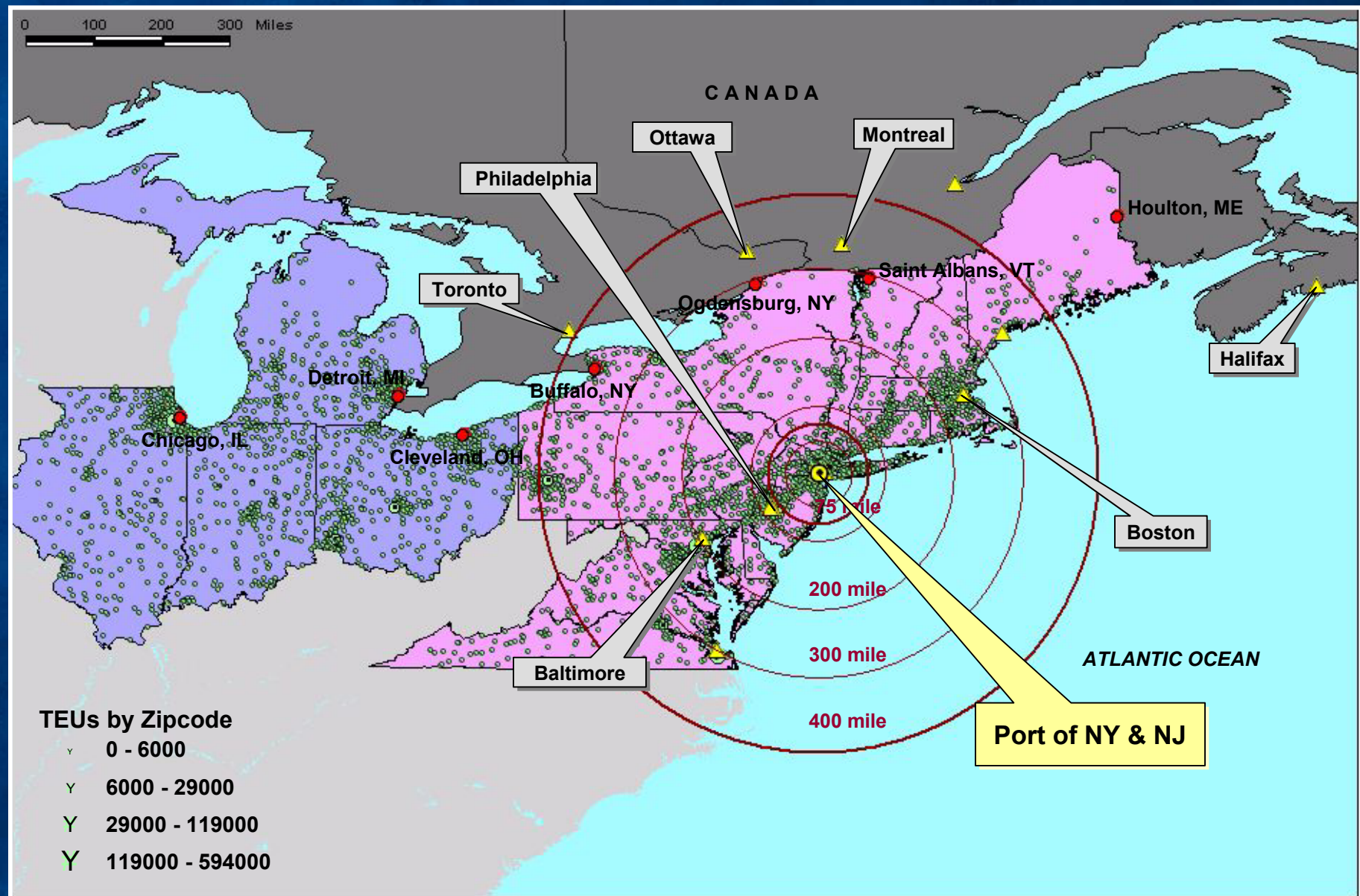
- Decentralization of Development Impact
- Economic Development of Feeder Ports and Hinterlands
- Value-Added Distribution Opportunities
- Significant Conservation of Energy



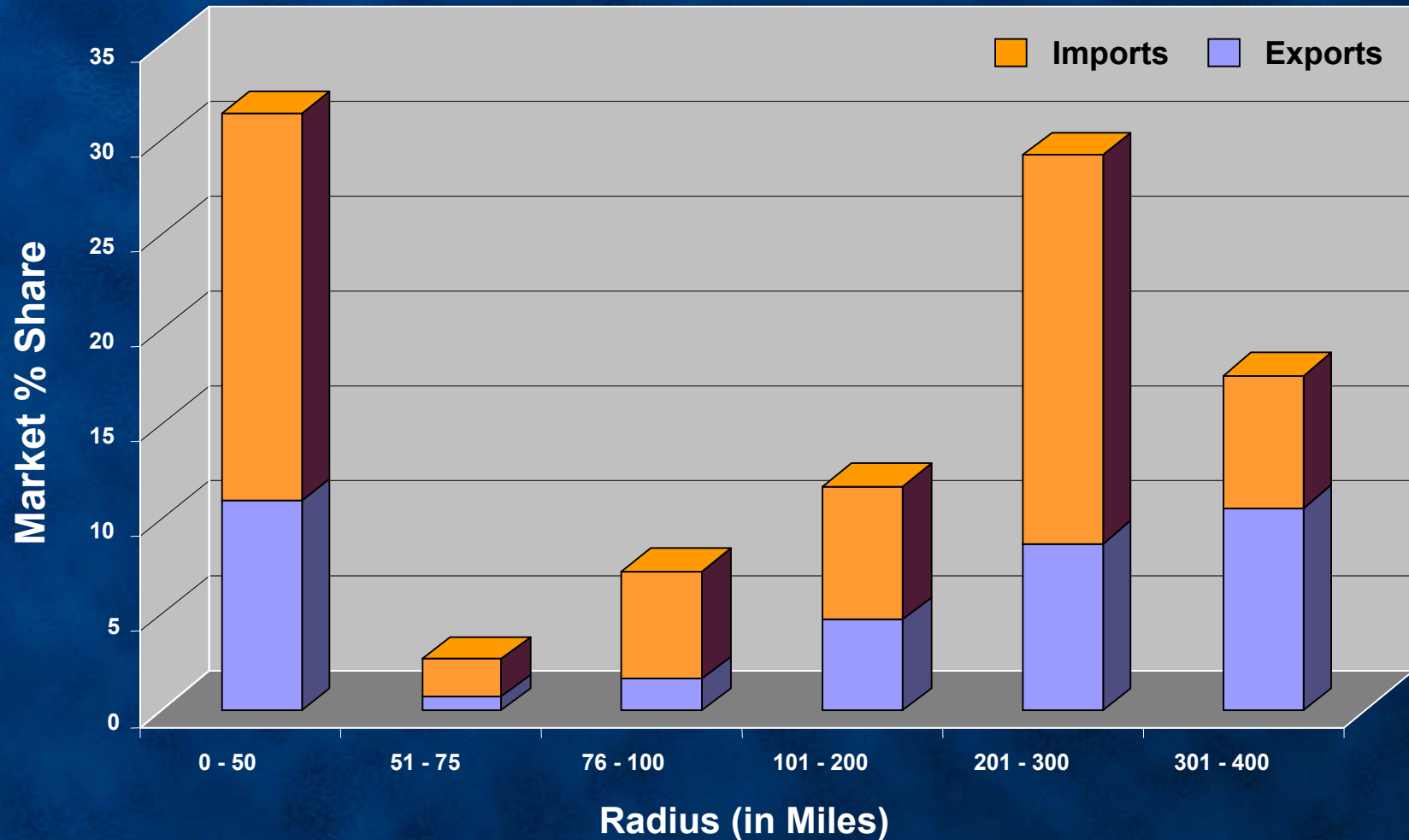
IDN

# SPATIAL CONCENTRATION OF TRADE

## *Origins and Destinations of Containerized Trade are Highly Concentrated*



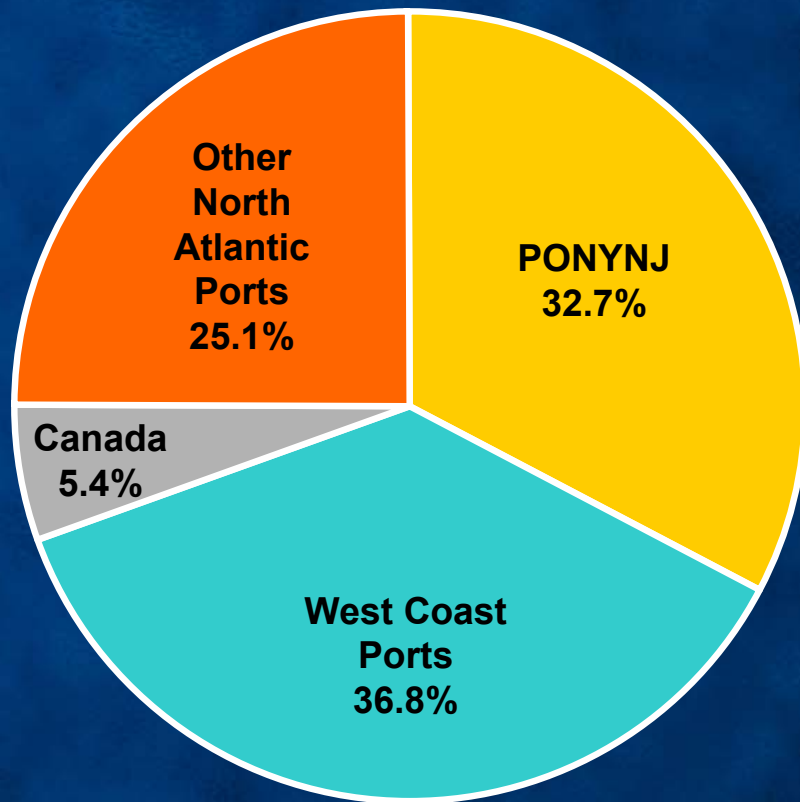
**Distribution of Containerized Trade within  
50 to 400 Mile Radius from Port Elizabeth 1998/99**



# TRADE CHARACTERISTICS

## *Each Zip Code Has Unique Trade Flow Characteristics*

### Ports



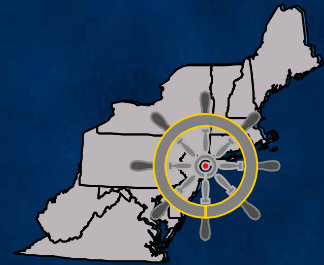
### International Market Top 10 Origin/Destination Countries (TEUs)<sup>1</sup>

China	168,046
Hong Kong	75,968
Italy	62,698
Germany	55,878
Puerto Rico	54,501
Korea	50,054
United Kingdom	46,040
Taiwan	41,561
Japan	35,267
Thailand	31,818

Note: 1) Year 2000 loaded TEUs for New Jersey.



# HOW PIDN WORKS





# PIDN SUCCESS STRATEGIES

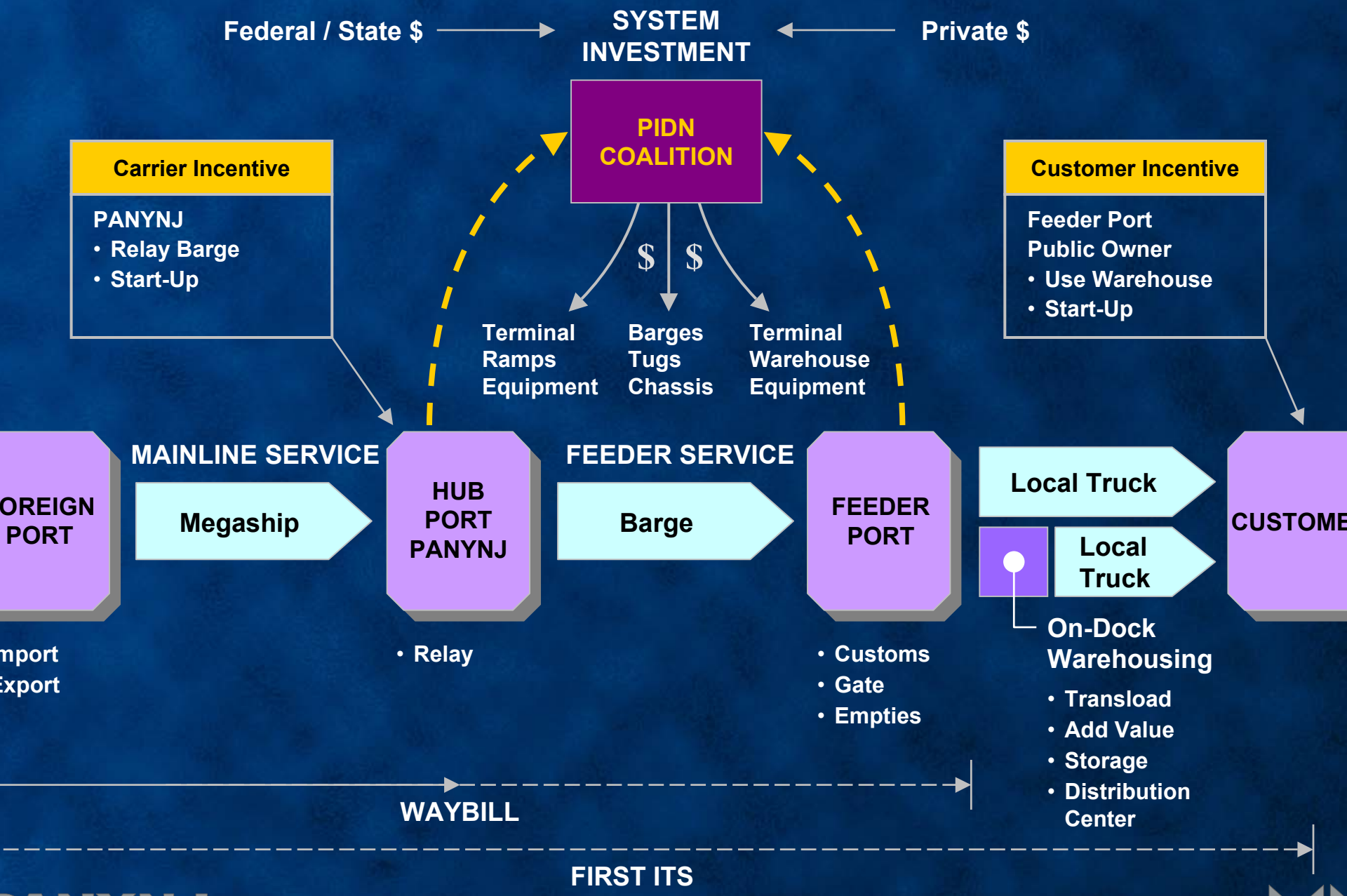
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- **Develop Innovative Structural Relationships**
- **Utilize New Technology**
- **Achieve Competitive Economics**
- **Provide Customer Value**
- **Produce Public Benefits**



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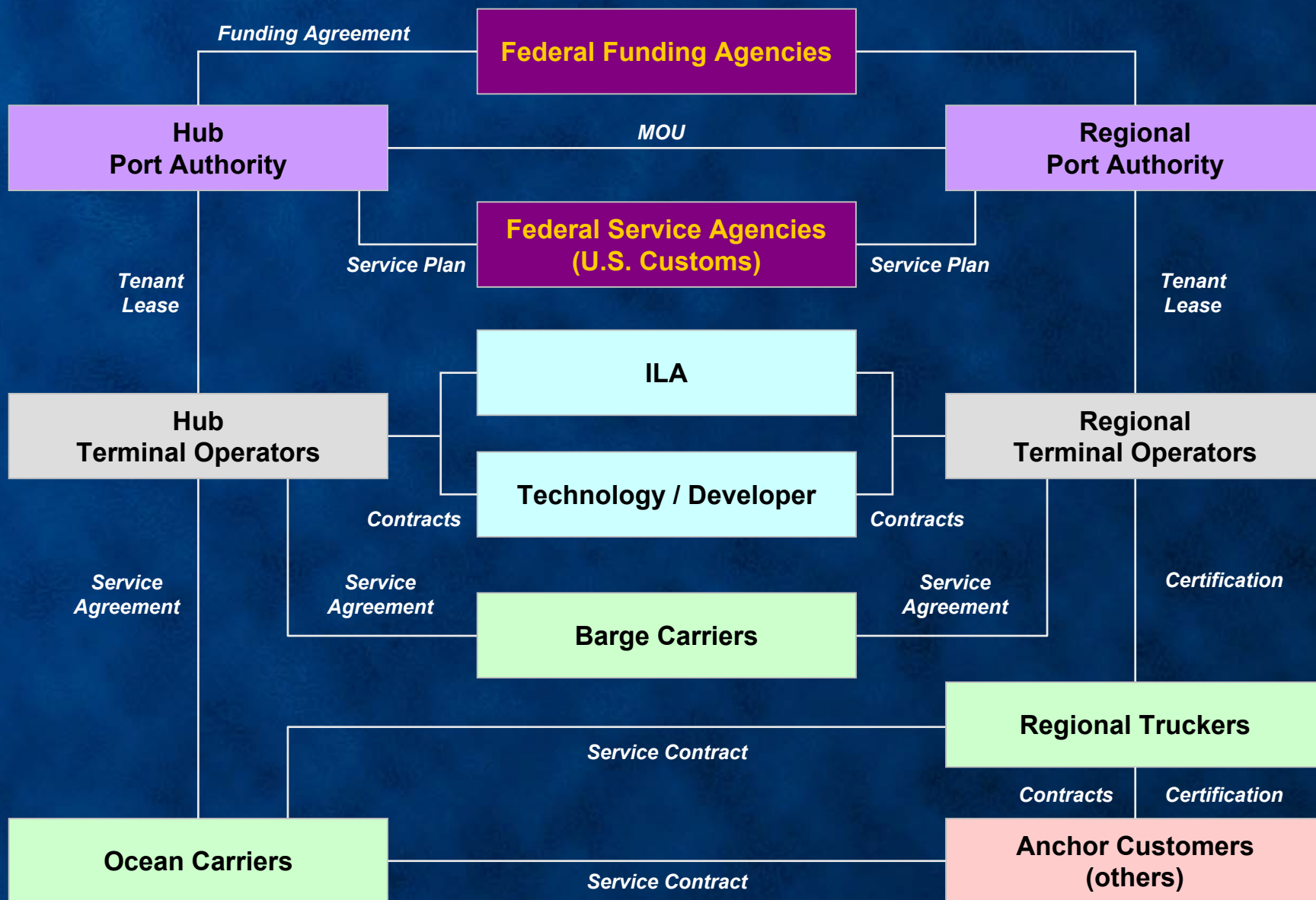
# STRUCTURAL RELATIONSHIPS





IDN

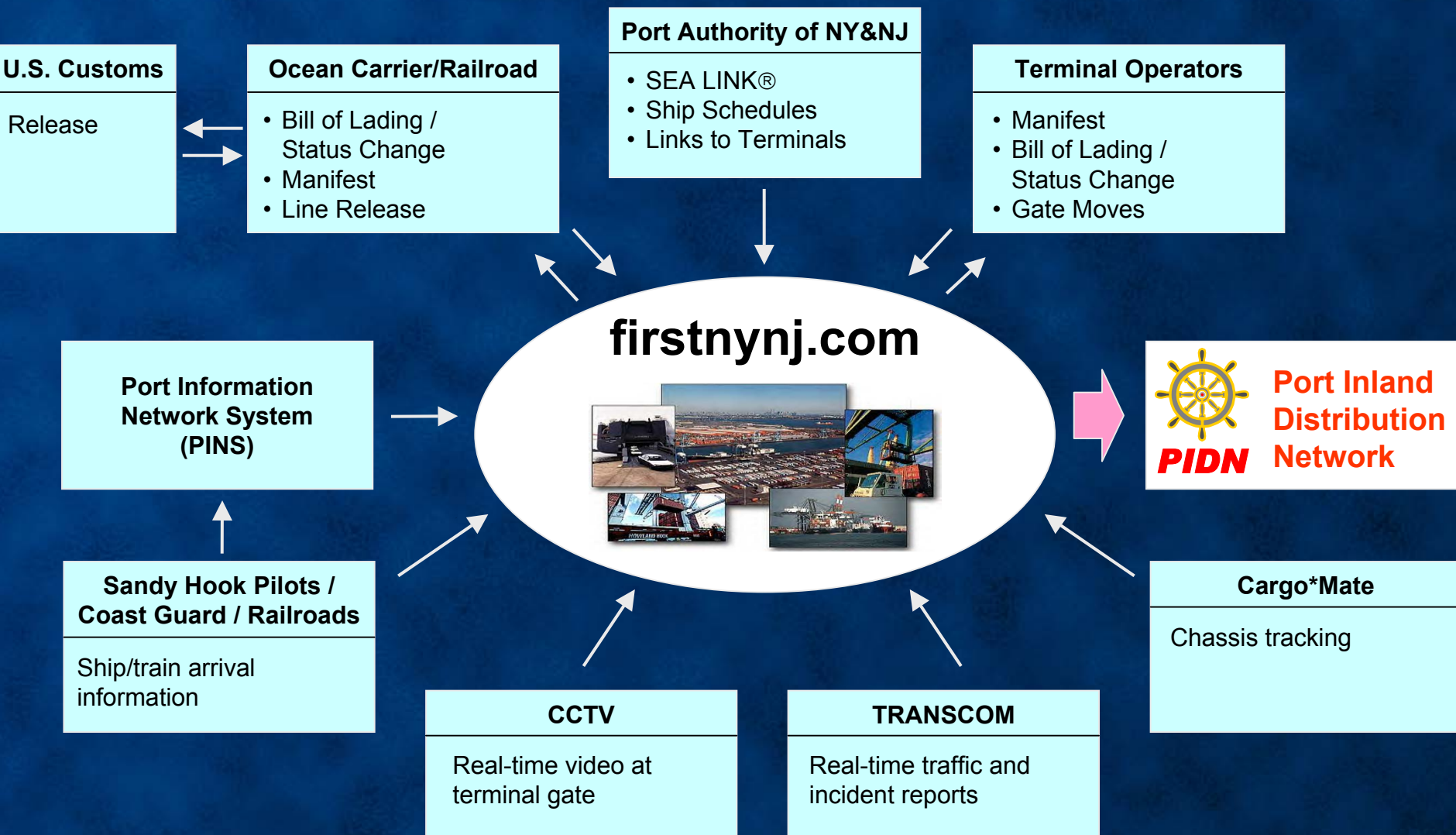
# PIDN PARTNERS





**IDN**

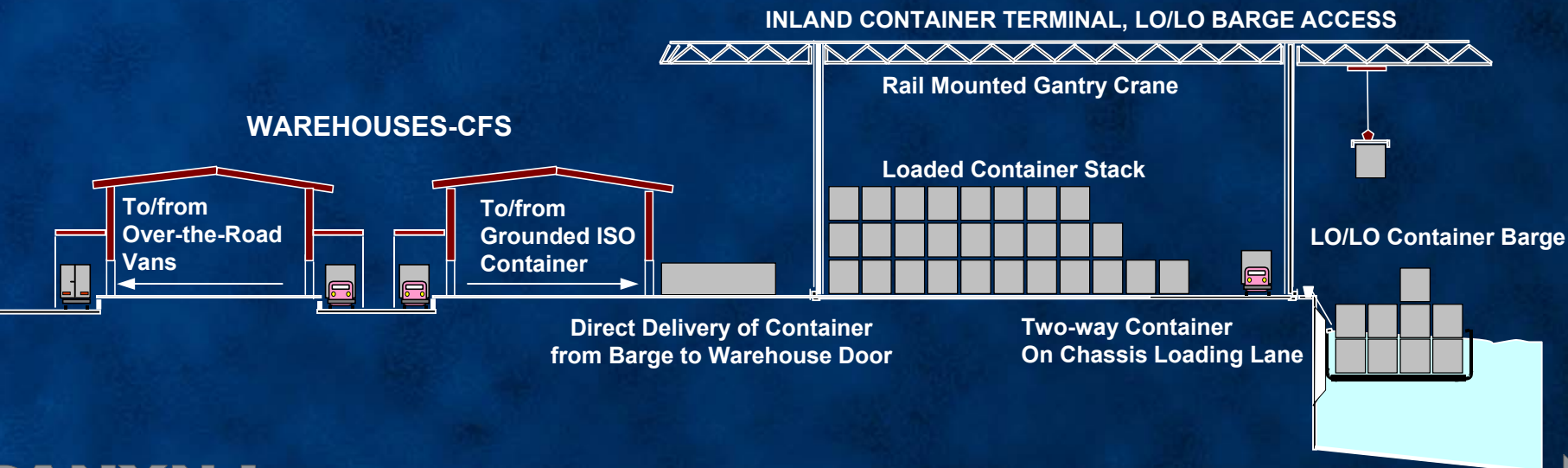
# NEW TECHNOLOGY: FIRST ITS SYSTEM





IDN

# NEW TECHNOLOGY: REGIONAL TERMINAL





# TRUCK VS. BARGE ECONOMICS – WILMINGTON

## Price Comparison of Transit Cost Per Container (Import Load, Empty Return)

	Truck	LO/LO Barge
<b>STEVEDORING AT PONYNJ</b>		
Same for Truck and Barge Off Ship		
On to Barge		\$100
<b>NYS/ILA ASSESSMENTS</b>		
Unit	\$ 65	25
Tonnage	70	0
Royalty is Port Blind, No Difference		
<b>INLAND TRANSIT, DELIVERY TO CUSTOMER</b>		
Truck PONYNJ to Feeder Port; Empty Return	575	
Load Up Barge Transit		125
Load Feeder Port Stevedoring		100
Local Delivery with Empty Return		150
Empty Feeder Port Stevedoring		100
Empty Barge Transit		25
PONYNJ Empty Stevedoring		100
<b>TOTAL PRICE TO CUSTOMER</b>		
	<b>\$710</b>	<b>\$725</b>
Chassis Pool Benefit		-80
<b>NET PRICE</b>		<b>\$645</b>



165 miles by truck  
from PONYNJ



205 miles by barge  
from PONYNJ

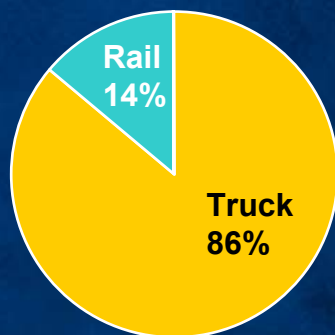
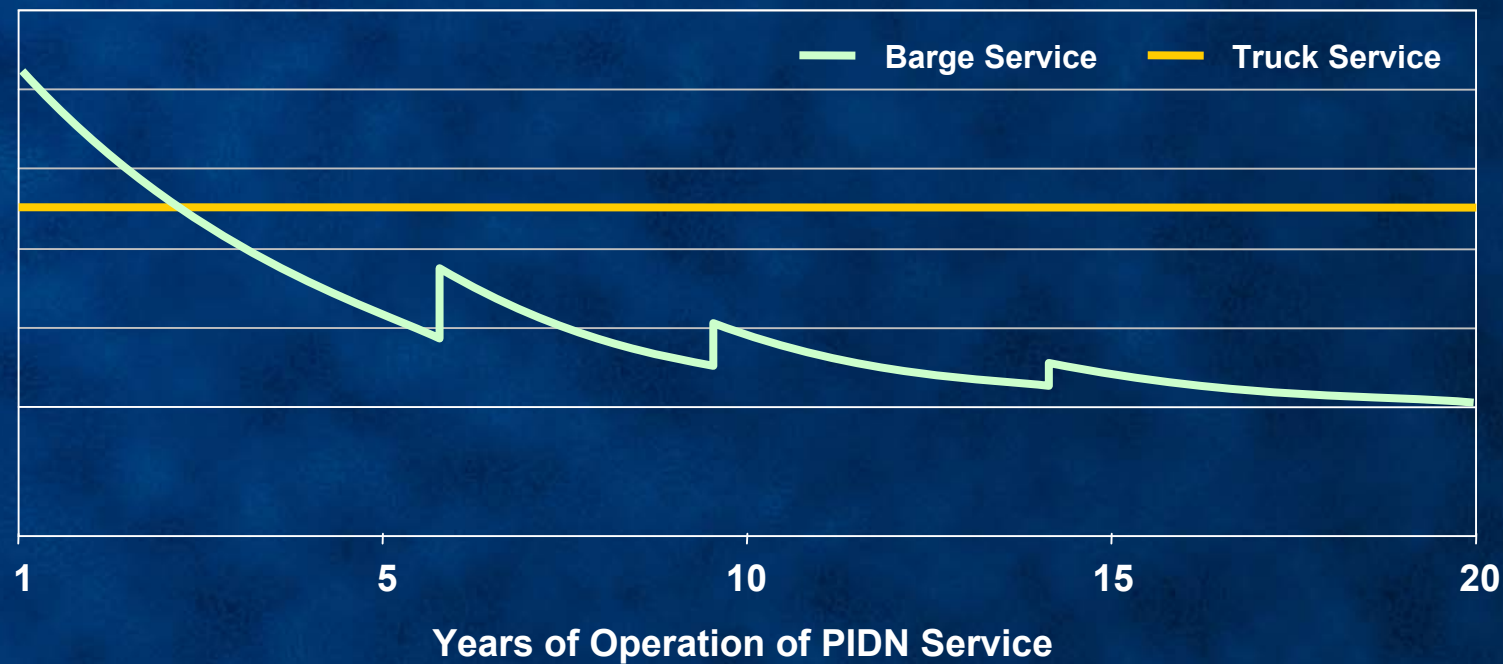


# BARGE ECONOMICS

IDN

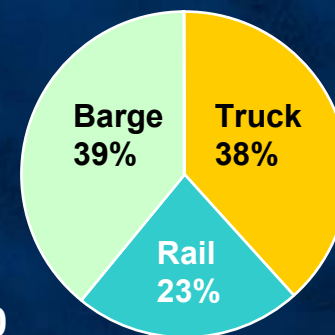
Unit  
Cost

## COST PER CONTAINER



Current

Modal Split



2020



# PIDN CUSTOMER VALUES

---

- **All Water Service – Closer to Customer**
- **On-Dock Warehouse – Value-Added Service**
- **Increase Service Reliability; Redundancy**
- **Responsive/Flexible Delivery Options**
- **Improved Asset Management – Chassis & Empties**



# PUBLIC BENEFITS

*PIDN Provides Highway Capacity at 1/3 the Cost & Stimulates Economic Development of the Nation*

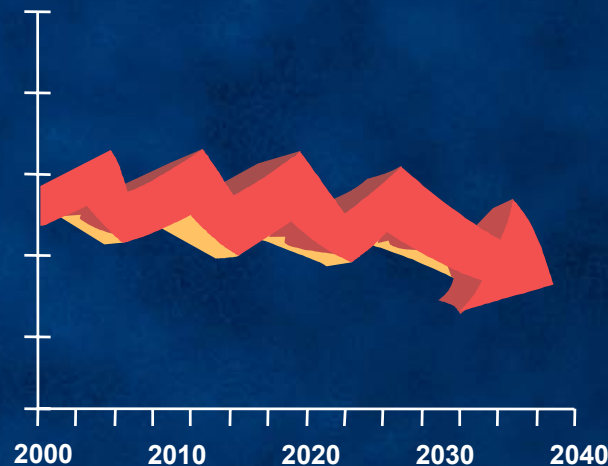
## HIGHWAY CONSTRUCTION COST AVOIDANCE



Highway Capacity  
Construction  
Cost Savings

**\$367,500,000**  
(PIDN Cost = \$243.3MM)

## FREIGHT TRANSPORTATION COST SAVINGS



Transportation Cost Savings  
Accrued by Using PIDN as  
Compared to the Truck

**\$140,700,000**  
(estimate for LO/LO-Rail PIDN system)

## DISTRIBUTION CENTER JOBS & TAXES



Jobs, Sales, Taxes from  
New Distribution  
Warehousing Activities

**\$137,000,000**  
(800+ New Jobs)

***Total Value of Economic Development Benefits = \$645,000,000***

# REDUCED TRUCK VMTs

## *Future Growth of Port Generated VMTs Avoided*

### VMТ Savings due to PIDN, Inside and Outside of the 75 Mile Radius Region, 1999 and 2020

Region	1999		
	VMТs Without PIDN	VMТs With PIDN <sup>1</sup>	VMТ Savings due to PIDN
75 Mile Radius	112,229,363	44,603,438	67,625,925
75 - 400 Mile	141,877,750	29,601,498	112,276,252

#### NOTE

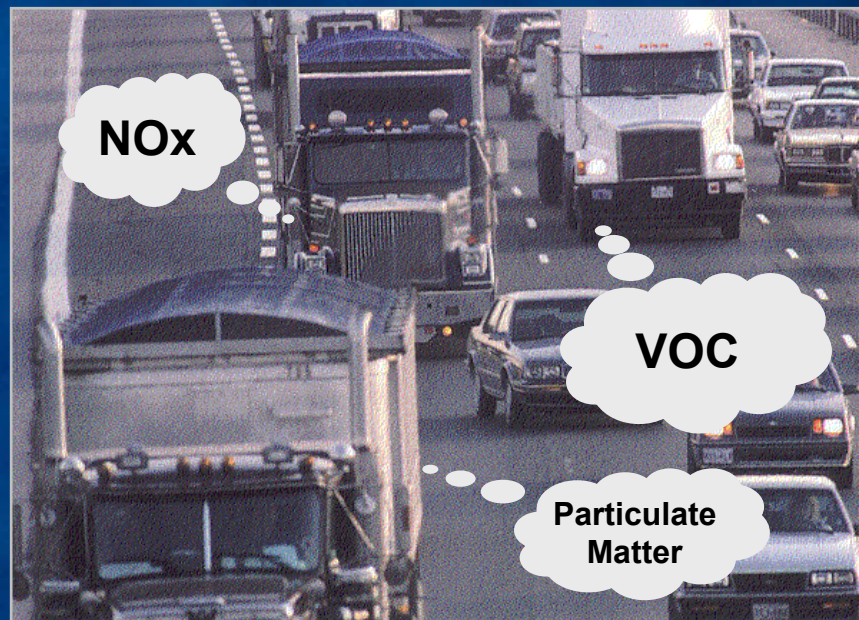
1) For illustrative purposes, this assumes PIDN to have already been developed

Region	2020		
	VMТs Without PIDN	VMТs With PIDN	VMТ Savings due to PIDN
75 Mile Radius	314,205,188	116,000,138	198,205,050
75 - 400 Mile	403,781,750	74,904,957	328,876,793



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# ENVIRONMENTAL BENEFITS



*Total net reduction of NOx emissions in inhabited areas resulting from using the barge as compared to the truck by 2020 is 4,335 tons per year*



## 2020 Net Reductions

Nitrogen Oxides @ 12.65 grams / VMT = 4,335 tons

Particulate Matter @ 0.788 grams / VMT = 270 tons

Volatile Organic Compounds @ 1.03 grams / VMT = 353 tons

Sulphur Oxides @ 0.520 grams / VMT = 178 tons

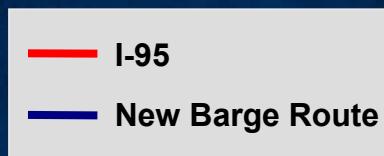
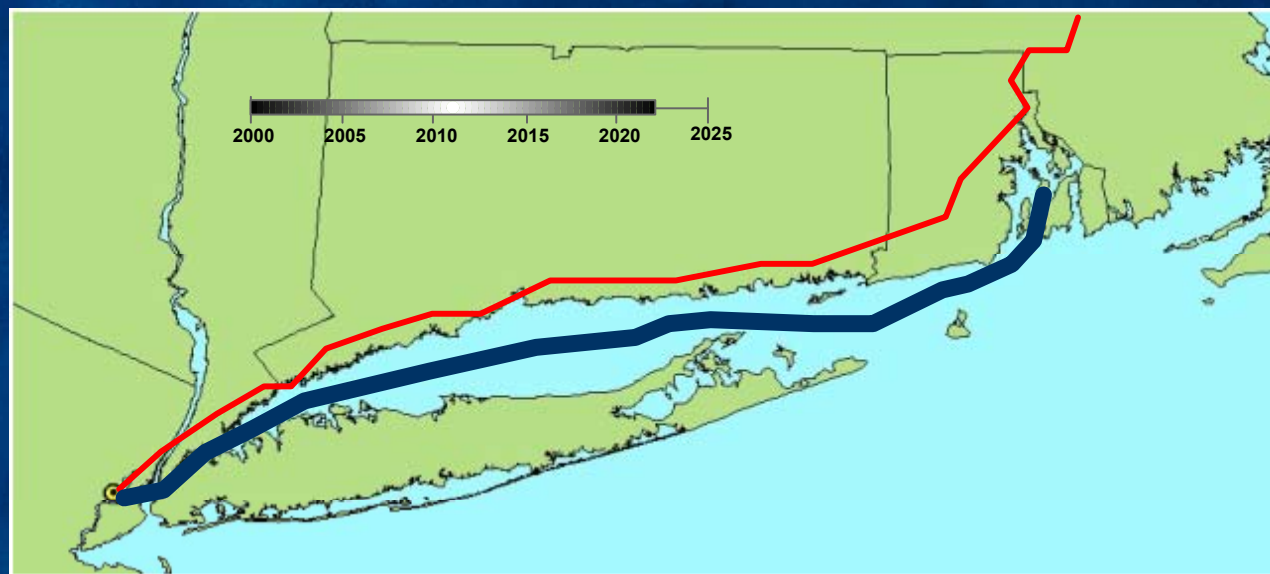


Source: U.S. Department of Transportation's Comprehensive Truck Size and Weight Study, Volume III - Scenario Analysis, Dec. 30, 1998, p. 10-2



IDN

# CONGESTION MITIGATION BENEFITS



## Forecast of Highway Construction Related Savings for 2020

*PIDN's congestion abatement value can be measured in terms of the estimated construction cost of the lane miles of "surrogate highway capacity" created.*

	Albany	Davisville	Wilmington	Camden	New Haven
VMT (000s) / year	11,526.1	95,518.1	42,589.2	61,693.4	11,012.7
Distance (mi)	169	189	165	119	159
Annual volume (in trucks/year)	68,202	505,387	258,116	518,432	69,262
Daily volume (in trucks/day)	262	1,944	993	1,994	266
Hourly volume (in trucks/peak hour)	26	194	99	199	27
Lane miles (both directions)	3.17	26.24	11.70	16.95	3.03
\$MM / lane mile	10.0	10.0	10.0	10.0	10.0
Total value (\$MM)	31.7	262.4	117.0	169.5	30.3

**Total Value of Equivalent Highway Capacity = \$610.8MM**



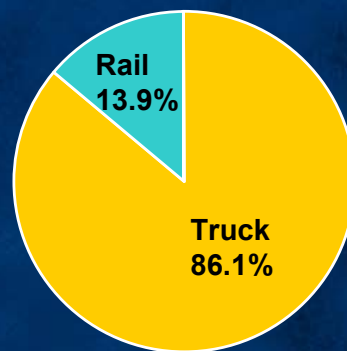
# TERMINAL PRODUCTIVITY BENEFITS

*By Cutting Container Dwell Time, PIDN Enables Higher Throughput Per Acre*

## PONYNJ CONTAINER TERMINAL



### WITHOUT PIDN



Modal Split

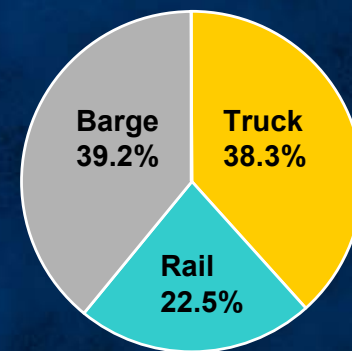
6 days

Dwell Time

3,400 Lifts/acre/yr

Target Productivity

### WITH PIDN



2 days

4,500 Lifts/acre/yr



# DEVELOPMENT PHASES

*PIDN's Growth is Projected to Transverse Four Distinct Development Phases*

